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## FOR IMMEDIATE RELEASE

### **Too Few Clues to Solve Mystery of Steller Sea Lions' Decline; Monitoring of Controlled Fishing Areas May Provide Answers**

WASHINGTON -- Killer whales, fishing gear, illegal shootings, harvesting by Alaska natives, or some combination of these -- rather than a diminished food supply -- appear to be the main reasons for the continuing population decline of Steller sea lions off the coast of Alaska, says a new report from the National Academies' National Research Council. There is insufficient evidence, however, to completely rule out other possible causes, and fishing restrictions in the area are still a "reasonable response" to the problem. The committee that wrote the report said a series of open and closed fishing areas is the best way to measure the impact fishing is having on sea lion survival.

"Figuring out what's killing the sea lions and how best to protect them will require a concerted effort to implement a management plan that facilitates the collection of data," said committee chair Robert Paine, professor emeritus, department of zoology, University of Washington, Seattle. "The sea lions seem fit, indicating that they have enough food, so researchers should focus on other causes of death, such as predators, getting caught in fishing gear, or illegal shootings, all of which may have contributed to past declines of sea lions but could be having a greater impact now that the population is severely depleted."

The number of Steller sea lions in Alaskan waters has dropped by more than 80 percent in the past three decades. Those living in the western Gulf of Alaska, around the Aleutian Islands, and in the eastern Bering Sea continue to decline and were listed as endangered in 1997. The population along the southeast Alaskan coast has increased gradually in recent years but is still listed as threatened. In 2000, the National Marine Fisheries Service, acting under the Endangered Species Act, placed new restrictions on the Alaskan groundfish fishery -- which harvests pollock, Pacific cod, and Atka mackerel -- after concluding that the fishing posed a threat to the sea lions' recovery. However, concerns about the impact of the new regulations on Alaskan communities prompted Congress to request the Research Council's study of the situation.

The hypotheses proposed to explain the decline of the sea lions can be divided into two categories. The first, known as "bottom-up" hypotheses, includes factors that would affect the overall health and fitness of the sea lions, such as large-scale fishing operations that may reduce the availability or quality of the sea lions' prey; climate changes during the 1970s that may have affected the distribution or abundance of their prey; diseases that inhibit sea lions' ability to forage for food; and pollution that contaminates fish eaten by sea lions, possibly limiting their ability to reproduce.

The second category -- comprising "top-down" hypotheses -- consists of factors that can kill sea lions regardless of their general health. These include killer whales, which may increasingly target sea lions as other prey become depleted; entanglement in fishing gear; illegal shootings; subsistence harvesting; and fatal diseases caused by contagious pathogens or pollution.

There is not enough evidence to prove any of these hypotheses, the committee said. A period of rapid decline from 1985 to 1989, when the population was falling by about 15 percent annually, occurred regionwide, indicating that it was most likely caused by an ecosystemwide change. There is evidence that the sea lions' nutrition was limited during this time, but lack of an adequate food supply cannot fully account for the magnitude of the decline.

The rate of decline since the early 1990s, however, has dropped to about 5 percent each year. While the overall rate of decline has fallen, individual rookeries, or breeding grounds, show different population trends -- the majority continue to decline, some have stayed the same, and a few have even increased. Recent tests of sea lion health and foraging activity show that they are not nutritionally stressed. And the reduced sea lion population compared with the relatively robust levels of fish during the 1990s also suggests that there was an adequate food supply, although localized depletions of some fish species may affect particular rookeries. This means that the bottom-up hypotheses pointing to food limitation are unlikely to be the primary threat to recovery. Instead, top-down causes of mortality appear to pose the greatest threat to the current population, the committee concluded.

Although most evidence indicates that groundfish fisheries are not causing a depletion of the food necessary to sustain the endangered sea lions, it is not conclusive enough to fully exclude fisheries as a contributing factor to the continuing decline, the committee said. Besides getting caught or entangled in fishing nets, sea lions attracted to fish in nets or on lines may become easy prey for killer whales. And in some areas, fisheries may be competing with sea lions for the same stock of fish. Fishermen also have been known to shoot sea lions to keep them away from fish or to prevent them from damaging gear, although shooting sea lions has been illegal since 1990.

The committee identified five possible management strategies for addressing the impact fisheries may be having on sea lion survival. Only one of these strategies -- establishing open and closed fishing areas centered around rookeries -- directly tests whether fisheries contribute to the decline. This strategy would allow researchers to study sea lions in relatively controlled, contrasting environments.

Although some fishing opportunities would be lost in the closed areas, more fishing

than is currently allowed could occur in the open areas. The open and closed fishing areas also reduce the possibility that regulation of the fishing industry is perpetuated indefinitely without any demonstrable benefit to the sea lion population. The committee said that experiments with the fishing areas should fill some data gaps in less than five years, but long-term monitoring over five to 10 years will be needed to assess reproduction and mortality rates.

The committee recommended research and monitoring of population trends, growth rates of individual sea lions, ecological features of the sea lion habitat, and predator population size and feeding habits.

The Research Council released the executive summary prior to completion of the full report so that the North Pacific Fishery Management Council, which sponsored the study, would have the committee's recommendations in time for a meeting to discuss the management plan for the Alaska groundfish fishery. The full report will be available later this month.

The National Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering. It is a private, nonprofit institution that provides science and technology advice under a congressional charter. A committee roster follows.

Read the executive summary of **The Decline of the Steller Sea Lion in Alaskan Waters: Untangling Food Webs and Fishing Nets** for free on the Web as well as 2,500 other publications from the National Academies. Printed copies are available for purchase from the National Academies Press; tel. (202) 334-3313 or 1-800-624-6242 or on the Internet at <http://www.nap.edu>. Reporters may obtain a pre-publication copy of the executive summary from the Office of News and Public Information (contacts listed above).

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